

In the Claims:

Please amend claims 1-8 and add new claims 9-20 to appear as indicated in the following listing of claims, which replaces all previous versions.

1. (Currently amended) An apparatus for predicting the outcome of a conditional branch outcome within a computer system, the apparatus comprising an activity monitor, responsive to means for identifying the occurrence of a conditional branch, means for obtaining data the activity monitor providing a measure of system activity since a previous branch, means for comparison comparing said data with data relating to previous system activity, and means for predicting the branch outcome being predicted based on such comparison.
2. (Currently amended) An apparatus according to claim 1, wherein the data relating to system activity comprises average system activity.
3. (Currently amended) An apparatus according to claim 1, wherein an activity history table is provided that stores and associates in which is stored data relating to previous system activity and with corresponding outcomes of previous branches the branch outcome to which such activity corresponded.
4. (Currently amended) An apparatus according to claim 3, wherein comprising means for, when a conditional branch is encountered, retrieving data relating the system activity between the conditional branch current and the previous branches is retrieved for comparison, and means for comparing this data with the data contained in the activity history table, wherein said means for predicting the branch outcome selects the branch outcome being predicted based on selecting the previous branch outcome which has associated therewith activity history data which most closely resembles the current retrieved system activity data.

5. (Currently amended) An apparatus according to claim 4, wherein the activity history table is updated with latest based on activity data and associated with the selected branch outcome.
6. (Currently amended) An apparatus according to claim 1, ~~including means for predicting wherein the branch outcome of a conditional branch is predicted~~ using outcome history of ~~that~~ the conditional branch.
7. (Currently amended) An apparatus according to claim 6, wherein data relating to the activity of the system is only used for branch outcome prediction if confidence of accuracy of branch outcome prediction using branch history is relatively low.
8. (Currently amended) A method for predicting ~~the outcome of a conditional branch outcome~~ within a computer system, the method comprising the steps of identifying ~~the~~ an occurrence of a conditional branch, obtaining data providing a measure of system activity since a previous branch, comparing said data with data relating to previous system activity, and predicting the branch outcome based on such comparison.
9. (New) A method according to claim 8, wherein the system activity data is a measure of average system activity.
10. (New) A method according to claim 9, wherein the average system activity is determined by monitoring a system supply current.
11. (New) A method according to claim 8, further comprising associating data relating to previous system activity with corresponding outcomes of previous branches, and storing the previous system activity and associated previous branch outcomes in an activity history table.
12. (New) A method according to claim 11, further comprising retrieving data relating the system activity between the conditional branch and the previous branches,

comparing the retrieved data with the data stored in the activity history table, and predicting the branch outcome based on selecting the previous branch outcome associated with activity history data most closely resembling the retrieved system activity data.

13. (New) A method according to claim 12, further comprising updating the activity history table based on activity data associated with the branch outcome.

14. (New) A method according to claim 8, further comprising predicting the branch outcome based on outcome history of the conditional branch.

15. (New) A method according to claim 14, further comprising determining whether to use data relating to the activity of the system for predicting branch outcome based on confidence of accuracy of branch outcome prediction using branch history.

16. (New) An apparatus according to claim 1, wherein the activity monitor monitors supply current.

17. (New) An apparatus according to claim 1, wherein the activity monitor includes a series of logic elements including a plurality of sequential logic elements clocked by a clock signal and plurality of combinatorial logic elements connecting the sequential logic elements such that, for a given clock signal cycle, counting state changes within the logic elements provides the measure of system activity.

18. (New) An apparatus according to claim 17, wherein the sequential logic elements include flip-flops.

19. (New) An apparatus according to claim 17, wherein the sequential logic elements include D-type latches.

20. (New) An apparatus according to claim 17, wherein the combinatorial logic elements include processing logic blocks and data path logic blocks.